

CLAIMS

1. A method for manufacturing a high ductility and high hot tensile strength tungsten wire for incandescent lamp filaments, comprising the steps of
5 preparing a tungsten alloy,
swaging a tungsten rod from the alloy,
drawing the swaged rod to wire size in multiple drawing passes,
annealing the wire between predetermined draws,
in which an annealing is performed before the final drawing pass, by annealing the wire at
10 a temperature between 1100-1300 °C.
2. The method of claim 1, in which the final drawing pass after said annealing is done at a different drawing speed than the previous drawing passes.
- 15 3. The method of claim 2, in which the final drawing pass after said annealing is done at a slower drawing speed than the previous drawing passes.
4. The method of claim 3, in which the final drawing pass after said annealing is done at a drawing speed substantially 0.65 times the drawing speed of the previous drawing pass.
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5. The method of claim 1, in which the wire is drawn from the swaged rod to final size in twenty to forty drawing passes.
6. The method of claim 1, in which the wire is pre-heated during the drawing passes.
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7. The method of claim 6, in which the wire is pre-heated to 500-900 °C during the drawing passes.
8. The method of claim 1, in which the drawing tools are pre-heated during the drawing
30 passes.

9. The method of claim 8, in which the drawing tools are pre-heated to 300-400 °C during the drawing passes.

5 10. The method of claim 1, in which the wire is further annealed between drawing passes preceding the final drawing pass.

11. A tungsten wire for incandescent lamp filament, having high ductility and high hot tensile strength, having a cold tensile strength - hot tensile strength ratio not exceeding 3.5.

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12. The wire of claim 11, having a hot tensile strength between 0.16 - 0.24 N/mg/200 mm, measured at 1620 °C.

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13. The wire of claim 11, having a cold tensile strength between 0.50-0.75 N/mg/200 mm, measured at room temperature.

14. The wire of claim 11, being formed as a coil, and having a mandrel ratio not exceeding 2.

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15. The wire of claim 11, comprising additives selected from the group of Al, K, Si.

16. The wire of claim 11, comprising additives selected from the group of Th, ThO, YO, LaO, CeO, Re.

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